

IN THE CLAIMS:

Please amend and/or add the following claims:

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Claim 1 (currently amended): An ink-jet recording apparatus, which has a recording head provided close to an ink reservoir, said recording head ejecting that ejects ink from the an ink reservoir, and driving signal generating means that generates a driving signal for ejecting ink droplets, comprising:

ink reservation amount obtaining means for obtaining the ink reservation amount in said ink reservoir;

62
temperature change amount obtaining means for obtaining the temperature change amount per unit of time of said recording head by a temperature sensor mounted on the recording head; and

ink consumption amount controlling means for controlling the ink consumption amount of said recording head based on the ink reservation amount as a function of the temperature change amount per unit of time ~~temperature change amount of the recording head obtained by both said temperature change amount obtaining means and the ink reservation amount obtained by said ink reservation amount obtaining means.~~

Claims 2 - 3 (withdrawn).

Claim 4 (original): The ink-jet recording apparatus according to claim 1, wherein said ink reservation amount obtaining means detects the ink consumption amount and obtains the ink reservation amount in said ink reservoir.

Claim 5 (withdrawn).

Claim 6 (original): The ink-jet recording apparatus according to claim 1, wherein said temperature change amount obtaining means comprises temperature detecting means for detecting the temperature of the recording head and temperature information storing means for storing the head temperature information from the temperature detecting means.

Claim 7 (original): The ink-jet recording apparatus according to claim 6, wherein said temperature information storing means stores the recording head temperature information from the time when a power source is turned on.

Claim 8 (original): The ink-jet recording apparatus according to claim 6, wherein said temperature information storing means stores the head temperature information in the waiting state of the recording operation.

Claim 9 (original): The ink-jet recording apparatus according to claim 6, wherein said temperature information storing means holds the stored head temperature information even after the power source is turned off.

Claim 10 (original): The ink-jet recording apparatus according to claim 9, wherein said temperature change amount obtaining means obtains the temperature change amount by using the head temperature information held in the temperature information storing means when the power source is turned on again within a specified time after power source is turned off.

Claim 11 (original): The ink-jet recording apparatus according to claim 1, wherein said driving signal generating means generates a driving signal that makes the recording head perform a recording operation, and said ink consumption amount controlling means adjusts the driving signal for the recording operation.

Claim 12 (original): The ink-jet recording apparatus according to claim 11, wherein said driving signal generating means generates a driving signal including the driving pulse for ejecting ink droplets, and said ink consumption amount controlling means adjusts the driving voltage of the driving pulse based on the temperature change amount and the ink reservation amount.

Claim 13 (original): The ink-jet recording apparatus according to claim 11, wherein said driving signal generating means generates the driving signal including the driving pulse for ejecting ink droplets, and said ink consumption amount controlling means adjusts the pulse form of the driving pulse based on the temperature change amount and the ink reservation amount.

Claims 14 - 24 (withdrawn).

Claim 25 (currently amended): An ink-jet recording method, ~~in which the ink-jet recording apparatus has~~ the method including use of a recording head provided close to an ink reservoir, said recording head for ejecting ink from the an ink reservoir, and driving signal generating means for generating a driving signal to eject droplets, the method comprising the steps of:

obtaining the ink reservation amount in said ink reservoir and obtaining the temperature change amount per unit of time of said recording head by a temperature sensor mounted on the recording head; and

controlling the ink consumption amount of said recording head based on the ink reservation amount as a function of the temperature change amount per unit of time of said recording head and said ink reservation amount.

Claims 26 - 29 (withdrawn).

Claim 30 (original): The ink-jet recording method according to claim 25, wherein said step of obtaining a temperature change amount of a recording head comprises the steps of:

detecting the temperature of said recording head; and

storing the detected head temperature information.

Claim 31 (currently amended): The ink-jet recording method according to claim 30, wherein ~~in~~ during said step of storing head temperature information, the head temperature information is stored from the time ~~when~~ the power source is turned on ~~the stored~~.

Claim 32 (currently amended): The ink-jet recording method according to claim 30, wherein ~~in~~ during said step of storing the head temperature information, the head temperature information in the waiting state of the recording operation is stored.

Claim 33 (currently amended): The ink-jet recording method according to claim 30, wherein ~~in~~ during said step of storing head temperature information, the stored head temperature information is held even after the power source is turned off.

Substantive
Claim 34 (currently amended): The ink-jet recording method according to claim 33, wherein ~~in~~ during said step of obtaining the temperature change amount of the recording head, the temperature change amount is obtained by using the stored detected head temperature, when the power source is turned on again within a specified time after the power source is turned off.

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Claim 35 (currently amended): The ink-jet recording method according to claim 25, wherein ~~in~~ during said step of controlling the ink consumption amount, the driving signal that makes a said recording head perform to recording operation is adjusted.

Claim 36 (previously amended): The ink-jet recording method according to claim 35, wherein said adjustment of the driving signal of the recording operation is an adjustment of the driving voltage for the pulse form, which is included in the driving signal for ejecting ink droplets.

Claim 37 (previously amended): The ink-jet recording method according to claim 35, wherein said adjustment of the driving signal of the recording operation is an adjustment of the pulse form of the driving pulse, which is included in the driving signal for ejecting ink droplets.

Claims 38 - 48 (withdrawn).

Claim 49 (currently amended): A computer program product for controlling the ink consumption amount of an ink-jet recording apparatus, comprising:

a recording medium capable of being read by a computer, and

a program of computer readable instructions adapted to enable the control of an ink-jet recording apparatus to perform the steps of:

executing printing by using a recording head provided close to an ink reservoir, said recording head ejecting ink from ~~the an~~ ink reservoir;

obtaining an ink reservation amount in said ink reservoir;

obtaining a temperature change amount of said recording head; and

controlling the ink consumption amount of the recording head based on said ink reservation amount as a function of the temperature change amount per unit of time, said temperature change amount of said recording head derived by a temperature sensor mounted on the recording head and said ink reservation amount.

Claim 50 (currently amended): An ink-jet recording apparatus, comprising:

a recording head, an ink reservoir, a drive signal generating section, an ink reservation amount obtaining section, a temperature change amount obtaining section, and an ink consumption amount controlling section;

said recording head provided close to said ink reservoir, said recording head receiving ink from the said ink reservoir;

said drive signal generating section generating a driving signal;

said recording head ejecting ink droplets of said ink, based on said driving signal, at an ink consumption amount;

said ink reservation amount obtaining section obtaining an ink reservation amount in said ink reservoir;

said temperature change amount obtaining section obtaining a temperature change amount per unit of time of said recording head by a temperature sensor mounted on the recording head; and

said ink consumption amount controlling section controlling said ink consumption amount of said recording head based on said ink reservation amount as a function of the temperature change amount per unit of time ~~temperature change amount and said ink reservation amount.~~


Claims 51 - 52 (withdrawn).


Claim 53 (previously added): The ink-jet recording apparatus according to claim 50, wherein said ink reservation amount obtaining section detects the ink consumption amount and obtains the ink reservation amount in said ink reservoir.

Claim 54 (withdrawn).

Claim 55 (previously added): The ink-jet recording apparatus according to claim 50, wherein said temperature change amount obtaining section comprises a temperature detecting section for detecting the temperature of the recording head and a temperature information storing section for storing the head temperature information from the temperature detecting section.

Claim 56 (previously added): The ink-jet recording apparatus according to claim 55, wherein said temperature information storing section stores the recording head temperature information from the time when a power source is turned on.

 Claim 57 (previously added): The ink-jet recording apparatus according to claim 55, wherein said temperature information storing section stores the head temperature information in the waiting state of the recording operation.

 Claim 58 (previously added): The ink-jet recording apparatus according to claim 55, wherein said temperature information storing section holds the stored head temperature information even after the power source is turned off.

Claim 59 (previously added): The ink-jet recording apparatus according to claim 58, wherein said temperature change amount obtaining section obtains the temperature change amount by using the head temperature information held in the temperature information storing section when the power source is turned on again within a specified time after power source is turned off.

Claim 60 (previously added): The ink-jet recording apparatus according to claim 50, wherein said driving signal generating section generates a driving signal that makes the recording head perform a recording operation, and said ink consumption amount controlling section adjusts the driving signal for the recording operation.

Claim 61 (previously added): The ink-jet recording apparatus according to claim 60, wherein said driving signal generating section generates a driving signal including the driving pulse for ejecting ink droplets, and said ink consumption amount controlling section

adjusts the driving voltage of the driving pulse based on the temperature change amount and the ink reservation amount.

Claim 62 (previously added): The ink-jet recording apparatus according to claim 60, wherein said driving signal generating section generates the driving signal including the driving pulse for ejecting ink droplets, and said ink consumption amount controlling section adjusts the pulse form of the driving pulse based on the temperature change amount and the ink reservation amount.

Claims 63 - 73 (withdrawn).

Claim 74 (currently amended): An ink-jet recording method, in which the ink-jet recording apparatus has a recording head provided close to an ink reservoir, said recording head for ejecting ink from the an ink reservoir, and a driving signal generating section for generating a driving signal to ejecting droplets, the method comprising the steps of:

obtaining the ink reservation amount in said ink reservoir and

obtaining the temperature change amount of said recording head; and

controlling the ink consumption amount of said recording head based on the ink reservation amount as a function of the temperature change amount per unit of time ~~temperature change amount of said recording head and said ink reservation amount.~~

Claims 75 - 76 (withdrawn).

Claim 77 (previously added): The ink-jet recording method according to claim 74, wherein said ink reservation amount is obtained by calculation based on totalization of the ink consumption amount.

Claim 78 (withdrawn).

Claim 79 (previously added): The ink-jet recording method according to claim 74, wherein said step of obtaining a temperature change amount of a recording head comprises the steps of:

detecting the temperature of said recording head; and

storing the detected head temperature information.

Claim 80 (currently amended): The ink-jet recording method according to claim 79, wherein ~~in~~ during said step of storing head temperature information, the head temperature information is stored from the time when the power source is turned on ~~the stored~~.

Claim 81 (currently amended): The ink-jet recording method according to claim 79, wherein ~~in~~ during said step of storing the head temperature information, the head temperature information in the waiting state of the recording operation is stored.

Claim 82 (currently amended): The ink-jet recording method according to claim 79, wherein ~~in~~ during said step of storing head temperature information, the stored head temperature information is held even after the power source is turned off.

Claim 83 (currently amended): The ink-jet recording method according to claim 82, wherein ~~in~~ during said step of obtaining the temperature change amount of the recording head,

the temperature change amount is obtained by using the stored detected head temperature information, when the power source is turned on again within a specified time after the power source is turned off.

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Claim 84 (currently amended): The ink-jet recording method according to claim 74, wherein ~~in~~ during said step of controlling the ink consumption amount, the driving signal that makes ~~a said~~ the recording head perform ~~to~~ the recording operation is adjusted.

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Claim 85 (previously added): The ink-jet recording method according to claim 84, wherein said adjustment of the driving signal of the recording operation is an adjustment of the driving voltage for the pulse form, which is included in the driving signal for ejecting ink droplets.

Claim 86 (previously added): The ink-jet recording method according to claim 84, wherein said adjustment of the driving signal of the recording operation is an adjustment of the pulse form of the driving pulse, which is included in the driving signal for ejecting ink droplets.

Claims 87 - 97 (withdrawn).